

Insects and Other Arthropods from Laysan Island

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Laysan Island is located 790 nautical miles to the northwest of Honolulu in the Leeward Chain of the Hawaiian Islands. The island is shaped like a large oval doughnut, about a mile wide and two miles long, with a lagoon of brackish water in the center. From 1890 until 1904 the island was leased by the Hawaiian Kingdom to the North Pacific Phosphate and Fertilizer Company which worked the guano beds. Schauinsland (1899) visited the island in 1896 for three months and prepared a report on the plant and insect life. In 1903 the manager of the guano company brought in rabbits. These devoured all of the vegetation on the island except the tobacco plants and the few coconut palms. Without vegetation to hold the sand and to provide nesting sites, the large population of sea birds was threatened and three of the five species of endemic birds became extinct. In 1909 Laysan was incorporated, along with other islands in the Leeward Chain, in the Hawaiian Island Bird Reservation. The rabbits were killed off in 1923, or shortly thereafter, and the vegetation began to regrow (Bryan, 1942).

Insects were collected on the island by G. P. Wilder in 1905, (Perkins, 1905), by W. A. Bryan in 1911 (Dill and Bryan, 1912), by D. T. Fullaway in 1912 (1914) and again in 1923 with the Tanager Expedition. A summary of these records was given in a report of the Tanager Expedition by Bryan (1926). Gulick (1932) included Bryan's Laysan Coleoptera and Diptera lists in a discussion of the biological peculiarities of oceanic islands. No collections of insects have been made on Laysan since the regrowth of the vegetation.

In 1959 the author spent three days in April and eight days in July on Laysan collecting insects, observing the diurnal activity of the Hawaiian monk seal and photographing the vegetation. With limited time, a far from exhaustive survey of the insects was made, but a number of new records was obtained. Approximately 140 species of insects are here recorded from Laysan. Midway Atoll lies 360 nautical miles to the northwest of Laysan and has approximately 205 species (Suehiro, 1960). Most of the species from Midway not found on Laysan are scattered throughout the various orders. Undoubtedly further collecting on Laysan will uncover many more species. Records of the Mallophaga are more numerous from Laysan, with 18 species collected as a result of the work of several ornithological expeditions, compared with only 4 species known from Midway.

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The following list of insects and other arthropods from Laysan Island is a revision of Bryan's (1926), with the 1959 collections indicated by * and the name changes and sequence according to Zimmerman's *INSECTS OF HAWAII* (1948 *et seq.*).

ARACHNIDA

ACARINA

Tetranychidae

- ***Brevipalpus obovatus** Donn.¹ (= *B. inornatus* (Banks)), determined by D. M. Tuttle; abundant on *Scaevola* and causing severe defoliation in some areas.

Argasidae

- ***Ornithodoros capensis** Neumann, determined by C. Clifford; abundant on the ground near the lagoon, under dead albatrosses and under *Nama*.

Ixodidae

- ***Ixodes** sp., determined by C. Clifford; in ear of Laysan teal.

ARANEIDA

(Determined by W. J. Gertsch)

Argiopidae

- ***Tetragnatha vicina** Simon

Lycosidae

- ***Lycosa oahuensis** Keyserling

Salticidae

- ***Menemerus bivittatus** Dufour

Scytodidae

- ***Scytodes striatipes** Koch

Theridiidae

- ***Coleosoma floridanum** Banks

CRUSTACEA

ISOPODA

- *Species not identified.

¹ All species with * collected in 1959 and determined by A. Suehiro unless otherwise noted.

CHILOPODA

Geophilidae

Honuahiphus alohanus Chamberlin

HEXAPODA

THYSANURA

*Species not identified.

COLLEMBOLA

Entomobryidae

**Drepanocyrtus terrestris* Folsom dark form, determined by D. L. Wray;
very abundant in duff and in *Cynodon*.

ORTHOPTERA

Blattidae

Phyllodromia sp.

Blattella germanica (L.)

Cutilia soror (Brunner)

**Periplaneta americana* (L.)

**Pycnoscelus surinamensis* (L.); nymphs in "clumps of grass".

ISOPTERA

Kalotermitidae

**Cryptotermes brevis* (Walker)

EMBIOPTERA

Oligotomidae

Oligotoma oceanica Ross

**Oligotoma saundersii* (Westwood), determined by E. S. Ross; in duff under
Casuarina, very abundant.

DERMAPTERA

Labiduridae

Anisolabis eteronoma Borelli

**Anisolabis perkinsi* Burr; abundant in duff and under dead albatrosses at
edge of lagoon.

**Euborellia annulipes* (Lucas), determined by A. B. Gurney.

CORRODENTIA

Lepidopsocidae

**Cyrtophania hirsuta* Banks, determined by E. L. Mockford; very abundant
in duff under *Casuarina*.

Peripsocidae

Ectopsocus fullawayi Enderlein

Elipsocidae

Kilauella sp.

MALLOPHAGA

Menoponidae

Actornithophilus milleri (Kellogg and Kuwana)

Ancistrana vagelli (Fabricius)

Austromenopon sternophilum (Ferris)

Longimenopon puffinus Thompson

Phloptoridae

Docophoroides brevis (Dufour)

Saemundssonina snyderi (Kellogg and Paine)

Quadriceps birostris (Giebel)

Quadriceps separata (Kellogg and Kuwana)

Pectinopygus gracilicornis (Piaget)

Pectinopygus sulae (Rudow)

Harrisoniella ferox (Giebel)

Harrisoniella sp. (?)

Perineus concinnus Kellogg and Chapman

Perineus giganticulum (Kellogg)

Docophoroides sp.

Giebelia ? *mirabilis* Kellogg

Haliperus mirabilis Thompson (family uncertain)

Luniceps sp. (family uncertain)

THYSANOPTERA

(Determined by F. A. Bianchi)

Phlaeothripidae

**Haplothrips gowdeyi* (Franklin); collected from flowers of *Tribulus*.

Thripidae

**Frankliniella sulphurea* (Schmütz); collected from flowers of *Capparis sandwichiana*, *Ipomea pes-caprae*, *Nama*, *Portulacca* and *Tribulus*.

HEMIPTERA

Cydnidae

**Geotomus pygmaeus* (Dallas)

Lygaeidae

**Nysius fullawayi fullawayi* Usinger; abundant on *Cyperus laevigatus* near lagoon.

Reduviidae

**Empicoris rubromaculatus* (Blackburn)

Nabidae

**Nabis blackburni* White

Anthocoridae

Orius persequens (White)

Miridae

**Cyrtopeltis modesta* (Distant); on *Boerhaavia*.

Oronomiris hawaiiensis Kirkaldy

HOMOPTERA

Delphacidae

Liburnia paludum (Kirkaldy)

Aphididae

Aphis medicaginis Koch

*Species not yet identified; on *Boerhaavia*, *Eragrostis*, *Ipomoea congesta*, *Scaevola*, *Tribulus*.

Pseudococcidae (Determined by J. W. Beardsley)

**Antonina graminis* (Maskell); on *Cynodon* and *Eragrostis*.

**Planococcus citri* (Risso); on *Boerhaavia*?, *Capparis sandwichiana*, *Eragrostis*, *Ipomoea pes-caprae*, *Sicyos*, *Tribulus* and coconut palm.

**Pseudococcus* sp., (apparently new); on *Scaevola*.

**Ferrisiana virgata* (Cockerell); on *Boerhaavia*, *Ipomoea congesta*, and *Tribulus*

**Trionymus insularis* Ehrhorn; on *Eragrostis*.

Coccidae (Determined by J. W. Beardsley)

**Saissetia nigra* (Nietner); on *Cyperus pennatifolius*, *Pluchea* and *Scaevola*.

Diaspididae (Determined by J. W. Beardsley)

**Hemiberlesia lataniae* (Signoret); on *Casuarina*.

NEUROPTERA

Chrysopidae

**Chrysopa lanata* Banks; adults very abundant flying around *Scaevola*, both larvae and adults on *Eragrostis*.

LEPIDOPTERA

Noctuidae

**Agrotis dislocata* (Walker); flying at night.

**Agrotis evanescens* (Rothschild); flying at night.

Agrotis fasciata (Rothschild)

Agrotis laysanensis (Rothschild)

Agrotis procellaris Meyrick

**Agrotis* sp. larvae, determined by H. W. Capps; abundant under *Nama Boerhaavia* (50 in 9 square feet in sand) and *Tribulus* (20-25 in 3 square feet in sand). Similar larvae were recovered from the stomach contents of a Laysan teal.

Peridroma porphyrea (Denis and Schiffermueller)

Pseudaletia unipuncta (Haworth)

Hypena laysanensis (Swezey)

*A very large climbing cutworm was observed feeding on *Nicotiana* at night, specimens lost.

Sphingidae

**Herse cingulata* (Fabricius)

Pyralidae

**Hymenia recurvalis* (Fabricius)

Hedylepta laysanensis (Swezey)

Oeobia dryadopa (Meyrick)

Ephestia cautella (Walker)

Pterophoridae

Megalorhipida defectalis (Walker)

Plutellidae

Plutella maculipennis Curtis

Tortricidae

Crociosema plebiana Zeller

Hyponomeutidae

**Pyroderces rileyi* Walsingham

**Hyposomocoma notabilis* Walsingham (? , larval case "similar to")

Tineidae

**Tineola uterella* Walsingham; one larval case.

Ereunetis kerri Swezey

**Ereunetis incerta* Swezey, determined by E. C. Zimmerman

Cygnodiidae

Petrochroa dimorpha Busck

COLEOPTERA

Carabidae

*Species not yet determined; abundant under dead albatrosses and under drying algal surface of dry lagoon bed.

Staphylinidae

*Species not yet determined; abundant under dead albatrosses and under drying algal surface of dry lagoon bed.

Coccinellidae

Pullus kinbergi (Boheman)

Scymnus debilis Leconte

Scymnus loewii Mulsant

*Species not yet determined; associated with *Trionymus insularis* on *Eragrostis*.

Cucujidae

Cryptamorpha desjardinsi Guenée

Silvanus surinamensis L.

Dermestidae

**Dermestes cadaverinus* Fabricius; under dead albatross.

Attagenus plebius Sharp

Tenebrionidae

Alphitobius diaperinus Panzer

**Alphitobius piceus* (Olivier); in clump of grass.

**Blapstinus* sp. (probably), determined by T. J. Spilman.

Tribolium ferrugineum Fabricius

Scarabaeidae

**Psammodius nanus* DeGeer = *Pleurophorus parvulus* Chevrolat

Cerambycidae

Clytus crinicornis Chevrolat

Chrysomelidae

*Specimens lost; associated with *Plucea*.

Bostrichidae

*Specimens lost; adults abundant flying at sunset one evening, 50 swept from air in one minute.

Anthribidae

**Araecerus fasciculatus* (DeGeer)

Cuculionidae

Dryophthorus distinguendus Perkins

Dryotribus mimeticus Horn

Dryotribus wilderi Perkins

Macrancylus immigrans Perkins

Macrancylus linearis Leconte

Oodemus laysanensis Fullaway

Pentarthrum blackburni Sharp

Rhyncogonus bryani Perkins

Sitophilus oryzae (L.)

Scolytidae

Stephanoderes sp.

DIPTERA

(Determined by D. Elmo Hardy)

Stratiomyidae

**Brachycara latifrons* James; larvae under dead albatrosses.

Dolichopodidae

**Chrysosoma fraternum* Van Duzee

**Hydrophorus praecox* Lehman

Phoridae

Aphiochaeta scalaris Loew

Milichiidae

**Milichiella lacteipennis* Loew

Borboridae

**Limosina ferruginata* (Stenhammer)

Limosina venalicia (Osten-Sacken)

Geomyzidae

**Bryania bipunctata* Aldrich

Chloropidae

**Siphunculina signata* Wollaston

Ephydriidae

**Neoscatella sexnotata* (Cresson)

Sarcophagidae

- **Goniophyto bryani* Souza Lopez

Calliphoridae

- **Lucilia graphita* Shannon
- Lucilia* sp. ? (probably)
- **Rhinia testacea* Robineau Desvoidy

Muscidae (includes Anthomyidae)

- Lispe* sp. ?
- **Musca domestica* L.
- **Musca vicina* Macquart

Hippoboscidae

- Olfersia fossulata* Macquart
- Olfersia aenescens* Thompson
- **Olfersia spinifera* Leach

HYMENOPTERA

Formicidae Determined by M. R. Smith

- **Cardiocondyla nuda minutior*; colony in stake in ground.
- Monomorium destructor* (Jerdon)
- **Monomorium floricola* (Jerdon); under dead albatross.
- Monomorium gracillimum* (Smith)
- Monomorium minimum* Buckley
- **Pheidole megacephala* Fabricius
- **Plagiolepis alluaudi* Emery; associated with *Saissetia nigra* on *Cyperus pennatifolius*, also on *Ipomea pes-caprae*.
- Ponera kalakauae* Forel
- Ponera punctatissima schauinslandi* Emery
- Tapinoma melanocephalum* (Fabricius)
- **Tetramorium guineense* (Fabricius); associated with *Pseudococcus citri* on *Sicyos* and *Pseudococcus* sp. on *Scaevola*.

Braconidae

- **Chelonus blackburni* Cameron; single adult on *Portulaca*.
- **Apanteles marginiventris* Cresson, determined by J. W. Beardsley; cocoons on leaves of *Tribulus*, reared from *Agrotis*.

Eulophidae

- *nr. *Euderus metallicus* (Ashmead), determined by C. Y. Yoshimoto.

Eupelmidae

- Eupelmus* sp.

Encyrtidae

- Ectroma* sp.

Mymaridae

- Unidentified species.

Pteromalidae

*Specimens not yet determined.

Doubtful identifications (Bryan, 1926)

Phaenopria sp.

Tropidopria sp.

LITERATURE CITED

- BRYAN, E. J., Jr. 1926. Insects of Hawaii, Johnson Island and Wake Island. BERNICE P. BISHOP MUSEUM BUL. 31:3-16.
- 1942. AMERICAN POLYNESIA AND THE HAWAIIAN CHAIN. Tongg Publ. Co. Honolulu, Hawaii.
- CHRISTOPHERSEN, E. and E. L. CAUM 1931. Vascular plants of the Leeward Islands, Hawaii. BERNICE P. BISHOP MUSEUM BUL. 81 41 pp.
- DILL, H. R. and W. A. BRYAN. 1912. Report on an expedition to Laysan Island in 1911. U.S.D.A. BIOL. SURVEY BUL. 42.
- FULLAWAY, D. T. 1914. List of Laysan Insects. PROC. HAW. ENT. SOC. 3(1):20-24.
- GULICK, ADDISON. 1932. Biological peculiarities of oceanic islands. THE QUARTERLY REVIEW OF BIOLOGY 7(4):405-427.
- HARDY, D. E. 1960. INSECTS OF HAWAII. Vol. 10 Diptera: Nematocera-Brachycera, 368 pp. University of Hawaii Press. Honolulu.
- PERKINS, R. C. L. 1905. (List of Midway and Laysan insects collected by G. P. Wilder). PROC. HAW. ENT. SOC. 1(1):33-34.
- SCHAUINSLAND, H. 1899. Drei Monate auf einer Koralleninsel. Bremen.
- SUEHIRO, A. 1960. Insects and other arthropods from Midway Atoll. PROC. HAW. ENT. SOC. 17(2):389-398.
- ZIMMERMAN, E. C. 1948. INSECTS OF HAWAII. Vol. 2 Apterygota to Thysanoptera pp. 1-475. Vol. 3 Heteroptera pp. 1-255. Vol. 4 Homoptera: Auchenorrhyncha pp. 1-268. Vol. 5 Homoptera: Sternorrhyncha pp. 1-464. 1957. Vol. 6 Ephemeroptera, Neuroptera, Trichoptera and Suppl. to Vol. 1 to 5 pp. 1-209. 1958. Vol. 7 Macrolepidoptera pp. 1-542. University of Hawaii Press, Honolulu.